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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,404	03/31/2006	Toshiki Taguchi	Q94242	5888

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EXAMINER
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SHAH, MANISH S

ART UNIT	PAPER NUMBER
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2853

MAIL DATE	DELIVERY MODE
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10/18/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/574,404

Applicant(s)

TAGUCHI ET AL.

Examiner

Manish S. Shah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-23 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/31/06</u> .   | 6) <input type="checkbox"/> Other: ____                           |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishita et al. (# US 2003/0159617).

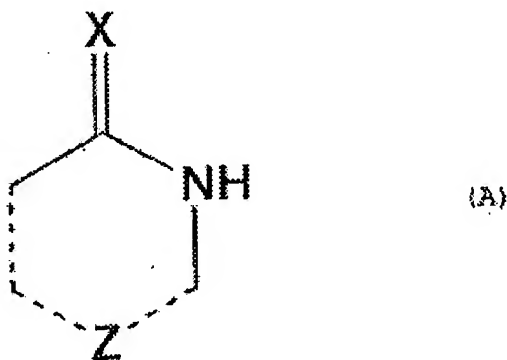
Nishita et al. discloses :

- An ink comprising: a dye, and water and/or a water-miscible organic solvent, wherein the dye comprises a dye compound having at least one heterocyclic structure, and the ink further comprises, as an additive, at least one compound capable of chemically interacting with the dye compound (see Abstract; Claim: 1).
- The dye compound has two hetero-aromatic rings bonded to each other via an azo bond (see Abstract).
- The dye compound has a metal-chelated hetero-aromatic ring structure ([0024]-[0093]).
- The additive is a hydrogen-bonding compound (see Examples).
- The  $\lambda_{\max}$  of a visible-range absorption spectrum of a diluted aqueous solution is shifted by at least 5 nm as compared with that in an absence of the additive, the diluted aqueous solution being a mixture of the additive and a heterocyclic structure

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having dye mixed in a molar ratio of 1/1 and having a concentration of at most 1 mmol/liter (see Examples).

- The additive has a cyclic amide structure and the dye compound has a nitrogen-containing 6-membered hetero-aromatic ring ([0024]-[0029]).
- The additive is a compound having a partial structure represented by the following formula (A):



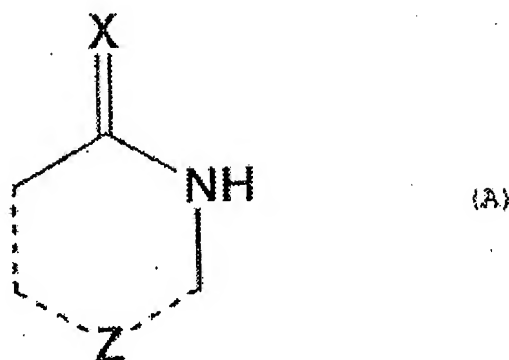
wherein X represents an oxygen atom, a sulfur atom, or N--R (R represents a hydrogen atom, or any of an alkyl group, an alkenyl group, an alkynyl group, an aralkyl group, an aryl group or a heterocyclic group); and Z represents an atomic group capable of forming a 5- to 8-membered ring (see Table: 1-13).

- An inkjet recording method, which comprises recording an image by using the ink or in set with an inkjet printer ([0212]-[0213]).

2. Claims 1-12 & 14-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishida et al. (# JP 2003-041162).

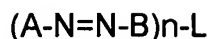
Nishida et al. discloses :

- An ink comprising: a dye, and water and/or a water-miscible organic solvent, wherein the dye comprises a dye compound having at least one heterocyclic structure, and the ink further comprises, as an additive, at least one compound capable of chemically interacting with the dye compound ([0008]-[0013]).
- The dye compound has two hetero-aromatic rings bonded to each other via an azo bond ([0058]-[0062]).
- The dye compound has a metal-chelated hetero-aromatic ring structure ([0058]-[0063]).
- The additive is a hydrogen-bonding compound (see Examples).
- The  $\lambda_{\text{max}}$  of a visible-range absorption spectrum of a diluted aqueous solution is shifted by at least 5 nm as compared with that in an absence of the additive, the diluted aqueous solution being a mixture of the additive and a heterocyclic structure having dye mixed in a molar ratio of 1/1 and having a concentration of at most 1 mmol/liter ([0021]-[0022]).
- The additive has a cyclic amide structure and the dye compound has a nitrogen-containing 6-membered hetero-aromatic ring ([0008]-[0021]).
- The additive is a compound having a partial structure represented by the following formula (A):



wherein X represents an oxygen atom, a sulfur atom, or N--R (R represents a hydrogen atom, or any of an alkyl group, an alkenyl group, an alkynyl group, an aralkyl group, an aryl group or a heterocyclic group); and Z represents an atomic group capable of forming a 5- to 8-membered ring ([0014]-[0018]; [0054]-[0058]).

- An inkjet recording method, which comprises recording an image by using the ink or in set with an inkjet printer ([0093]).
- An ink set comprising: at least one yellow ink, the yellow ink comprising an aqueous medium and an yellow dye dispersed or dissolved in the aqueous medium, and the yellow dye having: an oxidation potential of more positive than 1.0 V (vs SCE);  $\lambda_{\text{max}}$  within a range of from 390 nm to 470 nm; and an absorbance ratio of  $I(\lambda_{\text{max}}+70 \text{ nm})/I(\lambda_{\text{max}})$  of at most 0.4, wherein  $I(\lambda_{\text{max}})$  is an absorbance of  $\lambda_{\text{max}}$ , and  $I(\lambda_{\text{max}}+70 \text{ nm})$  is an absorbance of  $\lambda_{\text{max}}+70 \text{ nm}$ ; and black ink comprising at least one of the yellow dye ([0021]).
- The absorbance ratio of  $I(\lambda_{\text{max}}+70 \text{ nm})/I(\lambda_{\text{max}})$  of the yellow dye is at most 0.2 ([0021]).
- The yellow dye is a compound represented by the following formula:



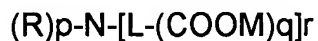
wherein A and B each independently represents an optionally-substituted heterocyclic group; n is 1 or 2; and L represents a hydrogen atom or a substituent bonding to A or B at any desired position ([0044]-[0058]).

- The concentration of a water-soluble organic solvent in the yellow ink is lower than that in the black ink (see Examples).
- The total solvent concentration in the yellow ink is lower than that in the black ink, and the total solvent concentration being determined by summing up concentrations of at least any two solvents selected from a glycol-type organic solvent, a glycol alkyl ether-type organic solvent and an amide-type organic solvent (see Examples).
- An inkjet color recording method, comprising recording an image on an image-receiving material having an image-receiving layer on a support by using an ink composition, the ink composition containing at least one of yellow azo dye and black azo dye and a water-miscible organic solvent, wherein an absolute value of an image density change at a point where a reflection density at a  $\lambda_{\max}$  region of the recorded image is 1.5, is at most 20% (see Examples).
- The image having a reflection density of 1.5 at a  $\lambda_{\max}$  region thereof is printed, and the density change is represented by the following formula in which  $D_a$  indicates an initial density of an image area, and  $D_b$  indicates a density thereof after left in an atmosphere of 80 °C. and 15% RH for 7 days: Density Change (%) =  $(D_b - D_a)/D_a \times 100$  (see Examples; [0102]-[0106]).
- The dye is an yellow dye represented by the following formula:



wherein A and B each independently represents an optionally-substituted heterocyclic group; L represents a hydrogen atom, a chemical bond or a divalent linking group; n is 1 or 2; provided that when n is 1, then L is a hydrogen atom, and A and B are both monovalent heterocyclic groups, and when n is 2, then L is a chemical bond or a divalent linking group, and one of A and B is a monovalent heterocyclic group and other one is a divalent heterocyclic group; when n is 2, then two A's may be the same or different, and two B's may be the same or different ([0044]-[0058]).

- The ink composition further contains a surfactant and the surfactant is a betaine-type surfactant ([0077]), wherein the betaine-type surfactant is represented by the following formula:



wherein R represents a hydrogen atom, an alkyl group, an aryl group, or a heterocyclic group; L represents a divalent linking group; M represents a hydrogen atom, an alkali metal atom, an ammonium group, a protonated organic amine or nitrogen-containing heterocyclic group, or a quaternary ammonium ion group, and when it is a counter ion to the ammonium ion with the N atom in the formula, then it is a group not existing as a cation; q indicates an integer of 1 or more; r indicates an integer of from 1 to 4; p indicates an integer of from 0 to 4; p+r is 3 or 4; when p+r is 4, then the N atom in the formula is a protonated ammonium atom ( $=N^+=$ ); when q is 2 or more, then COOM's may be the same or different; when r is 2 or more, then (L-(COOM)<sub>q</sub>)'s



may be the same or different; when p is 2 or more, then R's may be the same or different ([0077]).

- The ink composition contains as the water-miscible organic solvent at least one of triethylene glycol monobutyl ether, diethylene glycol monobutyl ether, tripropylene glycol monomethyl ether, and dipropylene glycol monomethyl ether ([0064]-[0068]).
- The dye has a oxidation potential of more positive than 1.0 V (vs SCE) ([0095]-[0109]).
- The image-receiving layer contains white an inorganic pigment particle ([0083]).

### ***Allowable Subject Matter***

3. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. (1) Ishizuka et al. (# US 2004/0010052) discloses the radiation curable ink composition includes dye, additive and water soluble organic solvent (see Abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Manish S. Shah  
Primary Examiner  
Art Unit 2853

MSS

10/15/07